

# BOTTOM, CHARMED MESONS ( $B = C = \pm 1$ )

$$B_c^+ = c\bar{b}, B_c^- = \bar{c}b, \quad \text{similarly for } B_c^{*'}\text{'s}$$

**$B_c^\pm$**

$$I(J^P) = 0(0^-)$$

$I, J, P$  need confirmation.

Quantum numbers shown are quark-model predictions.

$$\text{Mass } m = 6.4 \pm 0.4 \text{ GeV}$$

$$\text{Mean life } \tau = (0.46^{+0.18}_{-0.16}) \times 10^{-12} \text{ s}$$

$B_c^-$  modes are charge conjugates of the modes below.

| <b><math>B_c^+</math> DECAY MODES <math>\times B(\bar{b} \rightarrow B_c)</math></b> | Fraction ( $\Gamma_i/\Gamma$ ) | Confidence level | $P$<br>(MeV/c) |
|--|--------------------------------|------------------|----------------|
|--|--------------------------------|------------------|----------------|

The following quantities are not pure branching ratios; rather the fraction  $\Gamma_i/\Gamma \times B(\bar{b} \rightarrow B_c)$ .

|                                     |                                      |     |      |
|-------------------------------------|--------------------------------------|-----|------|
| $J/\psi(1S)\ell^+\nu_\ell$ anything | $(5.2^{+2.4}_{-2.1}) \times 10^{-5}$ |     | —    |
| $J/\psi(1S)\pi^+$                   | $< 8.2 \times 10^{-5}$               | 90% | 2448 |
| $J/\psi(1S)\pi^+\pi^+\pi^-$         | $< 5.7 \times 10^{-4}$               | 90% | 2429 |
| $J/\psi(1S)a_1(1260)$               | $< 1.2 \times 10^{-3}$               | 90% | 2255 |
| $D^*(2010)^+\bar{D}^0$              | $< 6.2 \times 10^{-3}$               | 90% | 2546 |